

Fast Flow Cavity Enhanced Ozone Monitor, Phase I

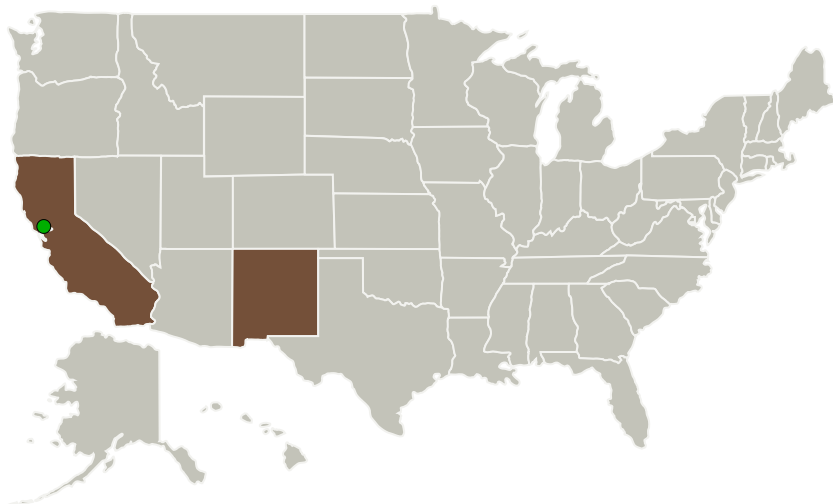
Completed Technology Project (2012 - 2012)



Project Introduction

Naturally occurring in the stratosphere, ozone plays a significant role in many atmospheric reactions, cloud formation, and is the key player in shielding harmful UV radiation. In the troposphere, it is a criteria pollutant produced via photochemical smog reactions, and is key in the formation of organic aerosols from VOCs. A better understanding on the distribution of ozone and its influences on cloud droplet formation is needed in order to better predict the radiation balance of the Earth in climate modeling studies. New instrumentation to provide sensitive, high throughput airborne measurement of ozone and other aerosol precursor gases is required to provide the necessary inputs in developing and refining accurate models of climate change. In this program, a resonant cavity optical sensor, using readily available components, will provide a significant advance in the development of high sensitivity instrumentation for airborne measurement of ozone or other gases important in climate change, where high throughput is critical for spatial resolution. Incoherent broad band cavity enhanced spectroscopy will be employed using UV LEDs to directly detect ozone. This configuration will allow for high sensitivity, a small foot print and high throughput, unlike conventional ozone monitors which use a long single pass absorption cell and filtered mercury lamps.

Primary U.S. Work Locations and Key Partners



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Organizations Performing Work	Role	Type	Location
Southwest Sciences, Inc.	Lead Organization	Industry	Santa Fe, New Mexico
● Ames Research Center(ARC)	Supporting Organization	NASA Center	Moffett Field, California

Primary U.S. Work Locations	
California	New Mexico

Project Transitions

**February 2012:** Project Start**August 2012:** Closed out**Closeout Documentation:**

- Final Summary Chart(<https://techport.nasa.gov/file/138152>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Southwest Sciences, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

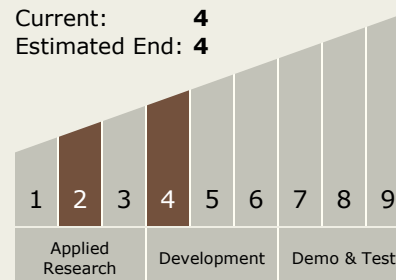
Carlos Torrez

Principal Investigator:

Anthony M Gomez

Technology Maturity (TRL)

Start: 2
 Current: 4
 Estimated End: 4



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Technology Areas

Primary:

- TX11 Software, Modeling, Simulation, and Information Processing
 - └ TX11.4 Information Processing
 - └ TX11.4.1 Science, Engineering, and Mission Data Lifecycle

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System